

What is Claimed is:

1. A video time code synchronized robot control
2 apparatus comprising:
3 a robot including an arm movable through a path of
4 movement;
5 a video camera, mounted on the arm of the robot, for
6 generating video signals during movement of the video camera;
7 time code generator means for generating time code
8 information;
9 a video tape recorder, responsive to the video signals
10 from the video camera and the time code information from the time
11 code generator means, for recording a composite signal formed of
12 the video signals and the time code information on a recording
13 medium;
14 time code reader means, responsive to the composite video
15 signal from the video tape recorder, for decoding the time code
16 information for each frame of the composite signal; and
17 robot controller means for controlling the path of
18 movement of the robot arm in accordance with a stored control
19 program, the robot controller means being responsive to the decoded
20 time code information from the time code reader for synchronizing
21 the movement of the robot arm along its predetermined path of
22 movement with the time code information from the time code reader
23 . on a frame-by-frame basis.

1. 2. The apparatus of Claim 1 further comprising:
2 monitor means, connected to the video tape recorder, for
3 displaying video images from one of the video camera and the
4 composite image recorded on a video tape.

1 3. The apparatus of Claim 1 wherein:
2 video signals from the video camera are output to the
3 time code generator means; and
4 the time code generator means outputs the video signals
5 and the time code information to the video tape recorder.

1 4. The apparatus of Claim 3 wherein the composite
2 signal from the video tape recorder is input to the time code
3 reader means.

1 SUB A2 5. The apparatus of Claim 1 wherein:
2 the video signals from the video camera are output to the
3 video tape recorder; and
4 the time code information from the time code generator
5 means is output to the video tape recorder.

1 6. The apparatus of Claim 5 wherein:
2 the composite signal from the video tape recorder is
3 input to the time code reader means.

1 SUB A3 7. The apparatus of Claim 1 wherein:
2 the video signals from the video camera are input to a
3 combined video time code generator and reader means for separately
4 generating time code information and for decoding time code
5 information, the time code information being output to the video
6 tape recorder.

1 8. The apparatus of Claim 7 wherein the composite
2 signal from the video tape recorder is input to the combined time
3 code generator and reader means for decoding the time code
4 information and for outputting the decoded time code information to
5 the robot controller.

1 Sub A4

9. The apparatus of Claim 1 wherein:
the robot controller means includes means for identifying
the positional coordinate of the robot arm corresponding in time
with each frame of video signals generated by the video camera; and
the robot controller means further including means for
moving the robot arm to the identified positional coordinates
corresponding to any frame of video signals as the time code
information identifying the any frame of video signals is input
thereto from the time code reader means.

10. A method of generating video images comprising:
programming a robot to repeatedly move a video camera
mounted on the end of a movable arm of the robot through a
predetermined path of movement;
operating the video camera to generate video signals from
the camera during movement of the arm of the robot;
generating time code information in conjunction with the
generation of video signals;
recording the video signals and the time code information
as a composite signal on a recording medium on a frame-by-frame
basis;
reading and decoding the time code information from the
composite signal and supplying the decoded time code information to
a robot controller which controls the movement of the arm of the
robot along the predetermined path of movement; and
synchronizing the movement of the robot arm along the
predetermined path of movement with the decoded time code
information such that the arm of the robot is positioned by the
robot controller in the same position for each frame of video
signal as when each frame of video signal was initially generated
by the video camera.

ADD A5